

### **REMARKS/ARGUMENTS**

In this Amendment, Applicants have amended independent claims 1 and 12 to more-particularly claim Applicants' invention. As will be discussed further below, Applicants respectfully submit that amended independent claims 1 and 12 are allowable over Lyons for at least the reason that Lyons does not disclose Applicants' claimed invention where the Bragg grating sensor performs a metrological instrumentation of the workpiece. In amending claims 1 and 12, Applicants have more-particularly claimed these features of the previously pending claims in the body of the claims. Whereas these features were previously claimed in the preamble of the claims, Applicants respectfully submit that these features are now claimed in the body of the claims, and that such limitations should be given patentable weight by the Examiner. In response to any argument that the Examiner may make with respect to apparatus claim 1 regarding functional limitations, if the Examiner considers such limitations "functional", Applicants respectfully submit that as stated in M.P.E.P. ¶ 2173.05(g), "[a] functional limitation must be evaluated and considered, just like any other limitation of the claim..." Applicants respectfully submit that independent claim 12 is a method claim, and thus, also properly claims a step of performing a metrological instrumentation of the workpiece.

Therefore, Applicants respectfully submit that in Lyons, even if Lyons can be considered to include the other claimed features of Applicants' invention, the sensor in Lyons does not perform any metrological instrumentation of the workpiece itself. All that Lyons' sensor detects is variations in properties of a fluid flowing in a boundary layer adjacent to the detector, and thus, adjacent to any "workpiece" itself. Thus, Lyons' disclosed sensor and Applicants' claimed Bragg grating sensor, and their associated different configurations, have two totally different functions/methods. Therefore, Applicants respectfully submit that independent claims 1 and 12 are allowable over Lyons.

As discussed above, and as claimed, Applicants' claimed Bragg grating sensor performs a metrological instrumentation of the workpiece itself. This is

why Applicants particularly claim that the recess has a breadth and depth matched to a diameter of the optical fiber designed as the Bragg grating sensor, and that the optical fiber is arranged in the recess. Thus, in Applicants' invention, the sensor performs a metrological instrumentation of the workpiece itself.

Applicants respectfully submit that Lyons provides no disclosure for any metrological instrumentation by the sensor, and even more-particularly, no metrological instrumentation of a workpiece itself. Rather, Lyons' sensor performs a totally different function from Applicants' claimed sensor and detects totally different properties than Applicants' sensor. Lyons' sensor senses variations in properties of a fluid. Applicants' sensor performs metrological instrumentation. Lyons' sensor detects the fluid flowing in a boundary layer adjacent to the body 38. Applicants' sensor performs a metrological instrumentation on the workpiece itself. Therefore, Applicants respectfully submit that Lyons cannot disclose Applicants' invention as now more-particularly claimed in independent claims 1 and 12.

Further, Applicants respectfully submit that it is improper, based on the specific disclosure and teachings of Lyons, to attempt to argue that Lyons' sensor can be modified to render Applicants' claimed sensor obvious. Lyons specifically teaches that a sensor is used to detect variations in a fluid flowing in a boundary layer adjacent to the detector. In Lyons, the sensor has the physical configuration it does because it must sense this fluid flow in the adjacent boundary layer. This is why the optical fiber 16 has a D-shaped cross-sectional profile. The planar surface 24 of the profile is disposed adjacent to the fluid flow field 12 and has an optical grating 26. Therefore, the teachings in Lyons all relate to a sensor that detects fluid flow in an adjacent boundary layer, and a specific physical configuration for this sensor in order to perform this specific function. Applicants respectfully submit that, based on the teachings of Lyons, one skilled in the art would not attempt to modify the sensor of Lyons such that it performs a completely different function. Applicants respectfully submit that

there would be no motivation to modify Lyons' fluid flow detector to perform Applicants' claimed metrological instrumentation. Merely because both sensors may include a Bragg grating, this can in no way render obvious Applicants' claimed invention in view of the adjacent fluid detector of Lyons. Applicants respectfully submit that the Examiner's arguments in the Office Action regarding dependent claims 22, 24, 26, and 28 that it would have been obvious to modify the teachings of Lyons to detect parameters other than fluid flow in an adjacent boundary layer because it would "allow the device additional versatility" is improper. Applicants respectfully submit that any "additional versatility" ascribed to Lyons' sensor is in actuality modifying the Lyons sensor to have a totally different principle of operation. As stated in M.P.E.P. ¶ 2143.01 VI., "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." Further, Applicants respectfully submit that, contrary to the Examiner's argument with respect to dependent claims 11 and 20, Lyons' sensor does not "measure properties of the body (38) as a dynamically loaded component..." (emphasis added). Again, Lyons' sensor detects the fluid flowing in a boundary layer *adjacent to* the body 38.

Applicants respectfully submit that similar to the way the reference to Haake, as cited in the prior Office Action, discloses a fiber that has a totally different purpose and construction than that claimed by Applicants, i.e., the fiber is merely damaged as a result of a fracture of the workpiece so that the fracture can be detected, Lyons also discloses a completely different sensor than that claimed by Applicants.

Therefore, Applicants respectfully submit that independent claims 1 and 12 are allowable over Lyons.

Since the present Office Action is a "Final" Action, Applicants are filing a Request for Continued Examination concurrent with this Amendment.

Appl. No. 10/646,708  
Amdt. Dated 12/05/2007  
Reply to Office Action of 09/20/2007

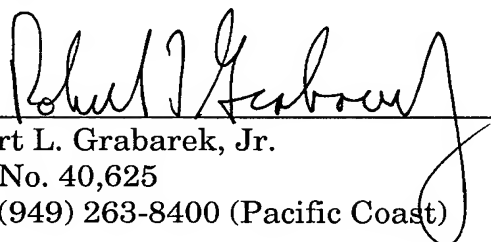
Applicants respectfully submit that the application is now in condition for allowance with claims 1, 5-12, 15, 17, and 19-28 being allowable.

If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned. If required, this paper should be considered as a Petition for Extension of Time. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket No. 011235.52686US).

Respectfully submitted,

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